

AMENDMENTS TO THE CLAIMS

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What is claimed is:

- 5 Claim 1 (currently amended): A process for preparing xylylenediamine by comprising continuously hydrogenating liquid phthalonitrile over a heterogeneous catalyst in the presence of liquid ammonia in a reactor, in which a portion of the reactor effluent is recycled as a liquid circulation stream continuously to the reactor inlet (circulation mode), which comprises conducting a stream of a phthalonitrile melt in liquid form by means of a mixer unit into the circulation stream around the hydrogenation reactor, the phthalonitrile conversion in the reactor on single pass being greater than 99%, and the circulation stream consisting to an extent of greater than 93% by weight of liquid ammonia and xylylenediamine and not comprising any further solvent for phthalonitrile.
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- 15 Claim 2 (currently amended): The process according to claim 1 ~~for preparing meta-xylylenediamine by~~ comprising hydrogenating isophthalonitrile in order to prepare meta-xylylenediamine.
- 20 Claim 3 (currently amended): The process according to claim 1 ~~claims 1 or 2~~, wherein the mixer unit is heated at the point of the phthalonitrile supply into the circulation stream to a temperature in the range from 1 to 40°C above the melting point of the phthalonitrile used.
- 25 Claim 4 (currently amended): The process according to claim 1 ~~any of the preceding claims~~, wherein the liquid phthalonitrile is sprayed into the circulation stream by means of a mixer nozzle as the mixer unit.
- 30 Claim 5 (currently amended): The process according to claim 1 ~~any of the preceding claims~~, wherein the phthalonitrile conversion in the hydrogenation reactor on single pass is greater than 99.5%.
- 35 Claim 6 (currently amended): The process according to claim 1 ~~any of claims 1 to 4~~, wherein the phthalonitrile conversion in the hydrogenation reactor on single pass is greater than 99.9%.
- 40 Claim 7 (currently amended): The process according to claim 1 ~~any of the preceding claims~~, wherein the circulation stream consists to an extent of greater than 94% by weight of liquid ammonia and xylylenediamine.
- Claim 8 (currently amended): The process according to claim 1 ~~any of the preceding claims~~, wherein the circulation stream contains in the range from 25 to 90% by weight of liquid ammonia.

5 Claim 9 (currently amended): The process according to claim 1 ~~any of the preceding~~  
claims, wherein the portion of the liquid reactor effluent which is recycled as the  
circulation stream continuously to the reactor inlet makes up from 20 to 95% by  
weight of the overall liquid reactor effluent.

10 Claim 10 (currently amended): The process according to claim 1 ~~any of the preceding~~  
claims, wherein the weight ratio of phthalonitrile feed stream to circulation stream  
is in the range from 0.03 to 1.0.

Claim 11 (currently amended): The process according to claim 1 ~~any of the preceding~~  
claims, wherein the hydrogenation is carried out at a temperature in the range  
from 40 to 150°C.

15 Claim 12 (currently amended): The process according to claim 1 ~~any of the preceding~~  
claims, wherein the hydrogenation is carried out at an absolute pressure in the  
range from 100 to 300 bar.

20 Claim 13 (currently amended): The process according to claim 1 ~~any of the preceding~~  
claims, wherein the hydrogenation is carried out over a catalyst comprising Ni, Co  
and/or Fe, as an unsupported catalyst or on an inert support.

25 Claim 14 (currently amended): The process according to claim 1 ~~any of the preceding~~  
claims, wherein the hydrogenation is carried out over a manganese-doped  
unsupported cobalt catalyst.

30 Claim 15 (currently amended): The process according to claim 1 ~~any of the preceding~~  
claims, wherein the catalyst is disposed as a fixed bed in a tubular reactor or tube  
bundle reactor.

Claim 16 (currently amended): The process according to claim 1 ~~the preceding claim~~,  
wherein the reactor is operated in trickle mode.

35 Claim 17 (currently amended): The process according to claim 1 ~~any of the preceding~~  
claims, wherein the reactor is operated adiabatically.

Claim 18 (currently amended): The process according to claim 1 ~~any of the preceding~~  
claims, wherein heat is withdrawn from the circulation stream in a cooler.

40 Claim 19 (currently amended): The process according to claim 1 ~~any of the preceding~~  
claims, wherein the xylylenediamine is purified after the hydrogenation by

distilling off the ammonia and also any relatively low-boiling by-products overhead and distillatively removing relatively high-boiling impurities via the bottom.

5    Claim 20 (currently amended): The process according to claim 19 ~~the preceding claim~~, wherein the xylenediamine is extracted after the distillation with an organic solvent for further purification.

10    Claim 21 (currently amended): The process according to claim 20 ~~the preceding claim~~, wherein cyclohexane or methylcyclohexane are used for the extraction.